

claims 1 and 11, along with those of claims 2-9, 12-28, and 32-34 which depend from claims 1 or 11, are respectfully traversed.

To emphasize the differences between claimed invention and the cited references, the Applicant has amended claims 1 and 11. The amendments to claims 1 and 11 will be discussed separately below.

Claim 1 has been amended to clarify several features of the invention recited therein that distinguish the claimed invention over the cited references. In particular, claim 1 specifies that a plurality of primary panels is used and that the primary panels are substantially flat and substantially rigid. The recited primary panels are secured to templates such that the primary panels conform at least in part to a part outline. The amendments further specify that the primary panels form part of the laminate article and that the outer surfaces of the primary panels form at least a portion of the finished surface of the laminate article.

The fabrication method recited in claim 1 thus allows a laminate article to be fabricated without the use of a mold. Because the claimed fabrication methods do not require the use of a mold, the claimed methods can be used to fabricate laminate articles without the time and cost required to build a mold. The claimed fabrication methods are of significant interest when used to manufacture laminate articles for prototype purposes or for relatively small production numbers where the costs of a mold cannot be easily amortized. However, nothing prevents the use of the claimed fabrication methods for the production of large numbers of articles.

In contrast, the fabrication methods recited in the Grimes, III and Pagoda references, as well as the method described in U.S. Patent No. 5,433,165 to McGuiness et al., disclose the use of a mold to fabricate a composite article. For small production runs or prototypes, the costs of a mold significantly increases the costs per unit of manufacturing the laminate article. The method recited in claim 1 thus provides a significant cost advantage over the methods described in the Grimes, III, Pagoda, and McGuiness et al. patents for small production runs and/or the manufacture of prototypes because a mold is not required.

Further, the outer surfaces of the primary panels recited in claim 1 form at least a portion of the finished surface of the laminate article. In the context of a laminate

article, it is typically desirable for the finished surface of the laminate article to be smooth, for both functional and aesthetic reasons. The substantially flat, substantial rigid primary panel can be mass produced with a smooth surface that forms the finished surface of the laminate article. The smooth surface of the primary panel does not require substantial finish work for most laminate articles.

In contrast, other techniques of forming laminate articles without the use of a mold require substantial finish work to obtain a desirable surface. For example, wooden panels can be used as the basis for a laminate part, but the application of composite layers to the wooden panel yields a rough exposed surface that must be worked by sanding and the like to obtain a desired smooth surface. The use of a substantially flat, substantially rigid primary panel to form the finished surface substantially reduces if not eliminates the need for finish work to be performed on the laminate article.

Because the claimed fabrication methods do not require that significant finish work be performed, the claimed methods can be used to fabricate laminate articles without the time and cost associated with the labor required to perform such finish work. The claimed fabrication methods thus significantly reduce the costs associated with finishing the laminate article and/or improve the quality of the finished surface of the laminate article.

Given the foregoing, the Applicant respectfully submits that claim 1 is allowable over the cited references, taken alone or in combination, and such allowance is respectfully requested. Claim 4 has been canceled by this amendment, and claims 2, 5, and 7 have been amended to conform to the language of amended claim 1 and/or the cancellation of claim 4. The Applicant respectfully submits that claims 2, 3, and 5-10 further define claim 1 and thus also are in condition for allowance.

Referring now to amended claim 11, this claim has been amended to clarify several features of the invention recited therein that distinguish the claimed invention over the cited references. In particular, claim 11 specifies that a plurality of primary panels is used and that the primary panels are substantially flat and substantially rigid. The recited primary panels are secured to a support structure such that the primary panels form a primary layer that conforms at least in part to a part outline. The

amendments further specify that the primary panels form part of the laminate article and that the outer surface of the primary layer form at least a portion of the finished surface of the laminate article.

The fabrication method recited in claim 11 thus allows a laminate article to be fabricated without the use of a mold. Because the claimed fabrication methods do not require the use of a mold, the claimed methods can be used to fabricate laminate articles without the time and cost required to build a mold. The claimed fabrication methods are of significant interest when used to manufacture laminate articles for prototype purposes or for relatively small production numbers where the costs of a mold cannot be easily amortized. However, nothing prevents the use of the claimed fabrication methods for the production of large numbers of articles.

In contrast, the fabrication methods recited in the Grimes, III and Pagoda references, as well as the method described in the McGuiness et al. reference, disclose the use of a mold to fabricate a composite article, which significantly increases the costs per unit of manufacturing the laminate article. The method recited in claim 11 thus provides a significant cost advantage over the methods described in the Grimes, III, Pagoda, and McGuiness et al. patents for small production runs and/or the manufacture of prototypes because a mold is not required.

Further, the outer surfaces of the primary panels recited in claim 11 form at least a portion of the finished surface of the laminate article. As generally described above, the smooth surface of the primary panel does not require substantial finish work for most laminate articles. In contrast, other techniques of forming laminate articles without the use of a mold require substantial finish work to obtain a desirable surface. Because the claimed fabrication methods do not require that significant finish work be performed, the claimed methods can be used to fabricate laminate articles without the time and cost associated with the labor required to perform such finish work. The claimed fabrication methods thus significantly reduce the costs associated with finishing the laminate article and/or improve the quality of the finished surface of the laminate article.

Given the foregoing, the Applicant respectfully submits that claim 11 is allowable over the cited references, taken alone or in combination, and such allowance is respectfully requested. Claims 12, 15, 16, 23, 24, 25, 28, and 29 have been amended

to conform to the language of amended claim 11. The Applicant respectfully submits that claims 12-35 further define claim 11 and thus also are in condition for allowance.

Given the foregoing, the Applicant respectfully requests that the rejections of claims 1-3, 5-9, 11-28, and 32-34 based on the Grimes, III and Pagoda references, taken alone or in combination, be withdrawn. The Applicant thus further respectfully requests allowance of these claims 1-3, 5-9, 11-28, and 32-34.

The Applicant has taken this opportunity to amend claims 1 and 11 to emphasize that the claimed methods may be used in situations other than vacuum forming. For example, the concepts of the present invention may be used during hand lay-up of composite materials or in other situations where the fabrication of a mold or mold assembly may not be practical.

Finally, the Applicant has amended line 16 of claim 12 to include the word "and" between the words "layer" and "the." The Applicant has further amended claim 24 to depend from claim 23 rather than directly from claim 11 to provide antecedent basis for the term "support structure" as used in claim 24.

Submitted herewith is a document (entitled Exhibit A - Listing of All Claims and Amendments (01-03-2006)) containing a listing of the claims as currently presented. The Listing attached herewith contains the text of each pending claim, along with any amendments made hereby (illustrated using strikethrough and underlining) and the status of each pending claim.

Given the foregoing, the Applicant respectfully submits that currently pending claims 1-3, 5-9, 11-28, and 32-34 are in condition for allowance, and such allowance is respectfully requested.

The Applicant further submits that claim 10, which depends from claim 1, and claims 29, 30, and 35, which depend from claim 11, are in condition for allowance given the allowance of generic claims 1 and 11. In this context, the Applicant notes that claim 29 has also been amended so that the language thereof corresponds to the language of claim 11, from which claim 29 depends.

If there is any matter which could be expedited by consultation with the Applicant's attorney, such would be welcome. The Applicant's attorney can normally be reached at the telephone number below.

Signed at Bellingham, County of Whatcom, State of Washington this 3rd day of January, 2006.

Respectfully submitted,

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37 C.F.R. §1.8

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Date: January 3, 2006